IN THE CLAIMS

1-6.   (Cancelled)

7.   (Currently Amended) <u>A channel assignment scheme for a node</u> ~~The method of Claim 1, further~~ comprising:

    <u>assigning a first channel to an uplink for a node;</u>

    <u>assigning a second channel for a downlink for the node;</u>

    <u>maintaining the first channel and the second channel distinct from an uplink channel of an upstream node; and</u>

    ~~assigning of~~ <u>wherein</u> the first channel and the second channel for the node <u>is</u> based on a number of hops from the node to a distinguished node.

8.   (Original) The method of claim 7, wherein there are multiple downlink nodes and the multiple downlink nodes use multiple downlink channels.

9.   (Original) The method of Claim 7 wherein the number of hops is determined from information carried in the routing packets.

10.   (Original) The method of Claim 9, wherein the routing information is propagated in the network on some or all of the channels available in the system.

11. (Original) The method of Claim 9, wherein the routing information is propagated in the network on a dedicated channel.

12. (Currently Amended) The method of Claim [[1]] 7, wherein the uplink channel of the node is assigned by the default gateway of the node.

13. (Currently Amended) The method of Claim 12, wherein assigning the downlink channel for a node comprises:

determining a plurality of potential channels for communication;

sending a reservation packet to trigger testing of each of the plurality of potential channels; and

determining a best channel based on responses to the reservation packet.

14. (Currently Amended) The method of Claim 13, wherein testing comprises:

each downstream node sending a plurality of packets to the node; and

evaluating a channel with the best greater link quality than other channels.

15. (Original) The method of Claim 14 wherein link quality is estimated by the throughput on the link.

16. (Original) The method of Claim 14 wherein link quality is estimated by measuring the packet error rate on the link.

17.   (Original) The method of Claim 14 wherein link quality is estimated by the signal-to-noise ratio observed on the link.

18.   (Original) The method of Claim 14 wherein link quality is estimated by the latency observed on the link.

19 – 30. (Withdrawn)

31.   (New) The method of Claim 7, wherein the channels are frequency channels.

32.   (New) The method of Claim 7, wherein the channels are different spreading codes in a spread-spectrum CDMA system.

33.   (New) The method of Claim 7, wherein the channels are different polarizations of the transmitted waveform.

34.   (New) The method of Claim 7, wherein the channels are different spatial signatures as determined by a smart antenna or adaptive antenna array at the receiver.

35.   (New) A channel assignment scheme for a node comprising:

assigning a first channel to an uplink for a node;

assigning a second channel to a downlink for the node;

maintaining the first channel and the second channel distinct from an uplink

channel of an upstream node; and

assigning the first channel and the second channel for the node based on a

number of hops from the node to a distinguished node and a number of available

channels.

36.   (New) The method of claim 35, wherein data regarding number of hops to

the distinguished node is carried within a routing packet to the node.

37.   (New) The method of Claim 34, wherein assigning the downlink channel

for a node comprises:

determining a plurality of available channels for communication;

sending a reservation packet to trigger testing of each of the plurality of available

channels; and

determining a channel based on responses to the reservation packet.

38.   (New) The method of Claim 37, wherein testing comprises:

each downstream node sending a plurality of packets to the node; and

evaluating a channel based on link quality.

39.   (New) A node comprising:

a transceiver having two interfaces, wherein each interface has a channel; and

a channel manager, the channel manager to assign a first channel for a first interface to an uplink for a node and a second channel for a second interface to a downlink for the node, wherein the assignment is based on a number of hops from the node to a distinguished node.

40. (New) The node of Claim 39, wherein each interface is half-duplex.

41. (New) The node of Claim 39, wherein the channels are frequency channels.

42. (New) The node of Claim 39, wherein the channels are different spreading codes in a spread-spectrum CDMA system.

43. (New) The node of Claim 39, wherein the channels are different polarizations of the transmitted waveform.

44. (New) The node of Claim 39, wherein the channels are different spatial signatures as determined by a smart antenna or adaptive antenna array at the receiver.